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**Committee on the Peaceful Uses of Outer Space**
**Scientific and Technical Subcommittee**
**Fifty-first session**
Vienna, 10-21 February 2014

# Draft report

**Addendum**

## III. Space technology for socioeconomic development in the context of the United Nations Conference on Sustainable Development and the post-2015 development agenda

1. In accordance with General Assembly resolution 68/75, the Subcommittee considered agenda item 6, "Space technology for socioeconomic development in the context of the United Nations Conference on Sustainable Development and the post-2015 development agenda".

2. The representatives of Austria, Canada, Egypt, Germany, Japan and Nigeria made statements under agenda item 6. During the general exchange of views, statements relating to the item were made by representatives of other member States.

3. The Subcommittee had before it the following:

(a) Conference room paper entitled "New web page on space and development" (A/AC.105/C.1/2014/CRP.12);

(b) Conference room paper entitled "Update on the recent developments in the context of the United Nations Conference on Sustainable Development and the post-2015 development agenda (A/AC.105/C.1/2014/CRP.21);

(c) Discussion paper submitted by Japan entitled "Draft proposed workplan for a mechanism of cooperative deliberation for 'space and sustainable development': bridging the Committee on the Peaceful Uses of Outer Space and the Scientific and Technical Subcommittee" (A/AC.105/C.1/2014/CRP.22);

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(d) Note by the Secretariat containing the progress report of the Open Working Group of the General Assembly on Sustainable Development Goals (A/AC.105/C.1/2014/CRP.23).

4. The Subcommittee heard the following scientific and technical presentations:

(a) "The use of space technologies for the implementation of space data infrastructure of the Ministry of Agriculture (IDE-MINAGRI) of Chile", by the representative of Chile;

(b) "The start of the Q/V Band Experimental Programme: new possibilities for fast telecommunication infrastructure development", by the representative of Italy;

(c) "BRITE nanosatellite mission: one year in orbit", by the representative of Austria;

(d) "Humanitarian telemedicine: potential telemedicine applications to assist developing countries in primary and secondary care", by the observer for ESPI;

(e) "Affordable Microsatellite-based Internet Access and Environmental Monitoring (AMBIEnT)", by the observer for the International Space University;

(f) "Kenyan Coast Observations through Affordable Space Technology Applications (KOASTAL)", by the observer for the International Space University.

5. The Subcommittee recalled that the General Assembly, in its resolution 68/75, reiterated that the benefits of space technology and its applications should continue to be brought to the attention, in particular, of the major United Nations conferences and summits for economic, social and cultural development and related fields and that the use of space technology should be promoted in efforts towards achieving the objectives of those conferences and summits, including implementing the Millennium Declaration and contributing to the post-2015 development agenda process.

6. The Subcommittee noted the role of space science and technology and their applications and geospatial information in areas such as tele-health and tele-epidemiology, tele-education, disaster management, environmental protection, urban and rural development and Earth monitoring, as well as their contribution to economic, social and cultural development.

7. The Subcommittee recalled that in paragraph 274 of the outcome document of the United Nations Conference on Sustainable Development, entitled "The future we want", Heads of State and Government recognized the importance of space-technology-based data, in situ monitoring and reliable geospatial information for sustainable development policymaking, programming and project operations.

8. The Subcommittee expressed its gratitude to the delegation of Japan for organizing a scientific and technical event entitled "Space and sustainable development: space technology and research for global health" on the margins of the current session of the Subcommittee.

9. The Subcommittee noted with appreciation that the eleventh open informal session of the Inter-Agency Meeting on Outer Space Activities (UN-Space) would be organized by the Office for Outer Space Affairs on 14 May 2014 in New York. The Subcommittee noted with satisfaction that the session of UN-Space would be

held in conjunction with the meeting of the United Nations Geographical Information Working Group, to be held from 14 to 16 May 2014.

10. The Subcommittee noted that the high-level event of the President of the General Assembly entitled "Contributions of North-South, South-South, triangular cooperation and information and communication technologies for development to the implementation of the post-2015 development agenda", was scheduled for 20 and 21 May 2014.

11. The Working Group of the Whole was reconvened under the chairmanship of V. K. Dadhwal (India), in accordance with paragraph 7 of General Assembly resolution 68/75. At its [...] meeting, on [...] February, the Subcommittee endorsed the report of the Working Group of the Whole, which is contained in annex I to the present report.

## V. Space debris

12. In accordance with General Assembly resolution 68/75, the Subcommittee considered agenda item 8, "Space debris".

13. The representatives of Canada, China, Egypt, Germany, India, Japan, the Republic of Korea, Pakistan, Switzerland, the United States and Venezuela (Bolivarian Republic of) made statements under agenda item 8. A statement was made under the item by the representative of Chile on behalf of the Group of Latin American and Caribbean States. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

14. The Subcommittee heard the following scientific and technical presentations:

(a) "Overview of the 2013 space debris activities in France", by the representative of France;

(b) "Space debris mitigation activities in Indonesia", by the representative of Indonesia;

(c) "International Scientific Optical Network (ISON) activities on highly elliptical orbit and geosynchronous orbit observations and analysis in 2013", by the representative of the Russian Federation;

(d) "Advances in Canada's contributions to space situational awareness", by the representative of Canada;

(e) "United States space debris environment, operations and modelling updates", by the representative of the United States;

(f) "Twenty years of the Inter-Agency Space Debris Coordination Committee", by the representative of China;

(g) "Propellantless deorbiting of space debris by bare electrodynamic tethers", by the representative of Spain;

(h) "European Space Agency space debris mitigation", by the observer for ESA.

15. The Subcommittee had before it information on national research on space debris, the safety of space objects with nuclear power sources on board and problems relating to the collision of such objects with space debris, containing replies received from Member States and international organizations on the issue (A/AC.105/C.1/108, A/AC.105/C.1/2014/CRP.6, A/AC.105/C.1/2014/CRP.7 and A/AC.105/C.1/2014/CRP.8).

16. The Subcommittee expressed concern at the increasing amount of space debris and encouraged those States which had not yet done so to consider voluntary implementation of the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space.

17. The Subcommittee agreed that States, in particular spacefaring nations, should pay greater attention to the problem of collisions of space objects, including those with nuclear power sources on board, with space debris and to other aspects of space debris, including its re-entry into the atmosphere.

18. The Subcommittee noted with satisfaction that some States were implementing space debris mitigation measures consistent with the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space and/or the Inter-Agency Space Debris Coordination Committee (IADC) Space Debris Mitigation Guidelines, and that other States had developed their own space debris mitigation standards based on those guidelines.

19. The Subcommittee noted that other States were using the IADC Guidelines and the European Code of Conduct for Space Debris Mitigation as reference points in their regulatory frameworks for national space activities. The Subcommittee also noted that other States had cooperated, in the framework of the ESA space situational awareness programme, to address the issue of space debris.

20. The Subcommittee noted with appreciation that States had adopted a number of approaches and concrete actions to mitigate space debris, including the improvement of the design of launch vehicles and spacecraft, the reorbiting of satellites, passivation, end-of-life operations and the development of specific software and models for space debris mitigation.

21. The Subcommittee noted that research was being conducted in the areas of technology for space debris observation and continuous monitoring, space debris re-entry prediction, collision avoidance and modelling of collision probability, in-orbit robotic servicing of satellites, and technologies to protect space systems from space debris and to limit the creation of additional space debris.

22. Some delegations expressed the view that information on actions to reduce the creation of space debris should be made available to the Committee, in particular by those States which were largely responsible for creating space debris and by the States that had the capacity to take action with regard to space debris mitigation.

23. Some delegations expressed the view that States should take action to improve technology for monitoring space debris as a matter of priority.

24. Some delegations expressed the view that outcomes of the work of working groups of the Subcommittee, such as the Safety Framework for Nuclear Power Source Applications in Outer Space and the Space Debris Mitigation Guidelines of

the Committee, should be officially presented to the Legal Subcommittee for examination.

25. Some delegations expressed the view that all relevant information related to the re-entry of space debris into the Earth's atmosphere should be reported diligently and expeditiously to countries that might be affected.

26. Some delegations expressed the view that developing countries should benefit from technical assistance in space debris monitoring provided by spacefaring nations.

27. Some delegations expressed the view that countries with highly advanced space programmes should assume their responsibilities in the area of space debris to ensure that the mitigation and removal costs were not passed on to countries with emerging space programmes, and that a solution should be sought in particular for space debris of large dimensions that could potentially generate multiple fragments, which would be costly to remove.

28. Some delegations expressed the view that the exchange of knowledge and data among States was essential for meaningful mitigation strategies and remediation measures.

29. The view was expressed that critical control measures should be applied for the control and the prevention of the generation of space debris.

30. The view was expressed that since space debris was created by the past operations of spacefaring countries, those countries should assist countries with emerging space programmes in the implementation of space debris mitigation measures through the provision of conjunction assessment risk analysis systems and situational awareness systems for the live monitoring of space objects, and in arranging financing to absorb additional costs incurred.

31. The view was expressed that it was necessary to continue improving the Space Debris Mitigation Guidelines of the Committee and that the Scientific and Technical Subcommittee and the Legal Subcommittee should cooperate with the aim of developing legally binding rules relating to space debris, including debris derived from space platforms with nuclear power sources on board.

32. The Subcommittee noted that Canada, the Czech Republic and Germany had initiated the development of a compendium of standards adopted by States and international organizations to mitigate space debris with a view to presenting the compendium to the Legal Subcommittee at its fifty-third session, in 2014.

33. The Subcommittee noted that the General Assembly, in its resolution 68/75, had called for the continuation of national research on the problem of collisions of space objects, including those with nuclear power sources, with space debris, for the development of improved technology for the monitoring of space debris and for the compilation and dissemination of data on space debris and had agreed that international cooperation was needed to expand appropriate and affordable strategies to minimize the impact of space debris on future space missions.

34. The Subcommittee agreed that research on space debris should continue and that Member States should make available to all interested parties the results of that research, including information on practices that had proved effective in minimizing the creation of space debris.

35. The Subcommittee agreed that Member States and international organizations with permanent observer status with the Committee should be invited to provide reports on research on space debris, the safety of space objects with nuclear power sources on board, problems relating to the collision of such space objects with space debris and ways in which debris mitigation guidelines were being implemented.